

# ALUMINUM ELECTROLYTIC CAPACITORS

**ULV** Chip Type, High Voltage.  
Long Life.



- Chip Type, high voltage and long life.
- Load life of 10000 hours at +105°C
- Applicable to automatic mounting machine using carrier tape.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).
- AEC-Q200 Qualified. Please contact us for details.

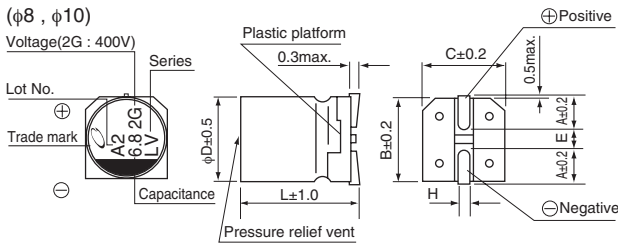


## Specifications

| Item                          | Performance Characteristics   |   |
|-------------------------------|---|---|
| Category Temperature Range    | -40 to +105°C   |   |
| Rated Voltage Range           | 160 to 500V   |   |
| Rated Capacitance Range       | 1.8 to 33μF   |   |
| Capacitance Tolerance         | ±20% at 120Hz, 20°C   |   |
| Leakage Current ※             | Rated voltage (V)   | 160 to 450  |
|                               | -   | 0.04CV+100(μA)max.(1 minute's at 20°C)            |
| Tangent of loss angle (tan δ) | 500   |   |
|                               | 0.04CV+200(μA)max.(1 minute's at 20°C)  |   |
|                               | Measurement frequency : 120Hz at 20°C   |   |
| Stability at Low Temperature  | Rated voltage (V)   | 160 200 250 400 450 500                           |
|                               | tan δ (max.)  | 0.20 0.20 0.25 0.25 0.30 0.30                     |
| Endurance                     | The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 10000 hours at 105°C.   |   |
|                               | Capacitance change  | Within ±30% of the initial capacitance value      |
| Shelf Life                    | tan δ   | 300% or less than the initial specified value     |
|                               | Leakage current   | Less than or equal to the initial specified value |
| Resistance to soldering heat  | The capacitors are kept on a hot plate for 30 seconds, which is maintained at 250°C and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the characteristic requirements listed at right when they are removed from the plate. |   |
|                               | Capacitance change  | Within ±10% of the initial capacitance value      |
| Marking                       | tan δ   | Less than or equal to the initial specified value |
|                               | Leakage current   | Less than or equal to the initial specified value |
|                               | Black print on the case top.  |   |

※ I : Leakage Current (μA), C : Rated Capacitance (μF), V : Rated Voltage (V)

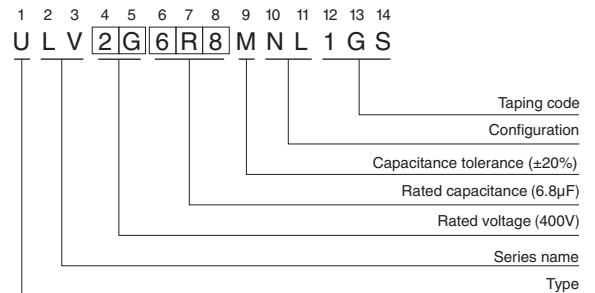
## Chip Type



| (mm) | $\phi 8 \times L$ | 10x10      | 10x13.5    |
|------|-------------------|------------|------------|
| A    | 2.9               | 3.2        | 3.2        |
| B    | 8.3               | 10.3       | 10.3       |
| C    | 8.3               | 10.3       | 10.3       |
| E    | 3.1               | 4.5        | 4.5        |
| L    | 10                | 10         | 13.5       |
| H    | 0.8 to 1.1        | 0.8 to 1.1 | 0.8 to 1.1 |

| Voltage |                         |
|---------|-------------------------|
| V       | 160 200 250 400 450 500 |
| Code    | 2C 2D 2E 2G 2W 2H       |

## Type numbering system (Example : 400V 6.8μF)



## Frequency coefficient of rated ripple current

| Frequency   | 50 Hz | 120 Hz | 300 Hz | 1 kHz | 10 kHz or more |
|-------------|-------|--------|--------|-------|----------------|
| Coefficient | 0.80  | 1.00   | 1.25   | 1.40  | 1.60           |

● Dimension table in next page.

ULV

## ■ Dimensions

| Rated Voltage<br>(V)<br>(code) | Rated<br>Capacitance<br>( $\mu$ F) | Case Size<br>$\phi$ D $\times$ L (mm) | tan $\delta$ | Leakage Current<br>( $\mu$ A)<br>(at 20°C after<br>1 minute) | Rated Ripple<br>(mArms)<br>(105°C/120Hz) | Part Number    |
|--------------------------------|------------------------------------|---------------------------------------|--------------|--|--|----------------|
| 160<br>(2C)                    | 15                                 | 8 $\times$ 10                         | 0.20         | 196  | 50                                       | ULV2C150MNL1GS |
|                                | 22                                 | 10 $\times$ 10                        | 0.20         | 240.8  | 65                                       | ULV2C220MNL1GS |
|                                | 33                                 | 10 $\times$ 13.5                      | 0.20         | 311.2  | 70                                       | ULV2C330MNL1GS |
| 200<br>(2D)                    | 12                                 | 8 $\times$ 10                         | 0.20         | 196  | 50                                       | ULV2D120MNL1GS |
|                                | 18                                 | 10 $\times$ 10                        | 0.20         | 244  | 65                                       | ULV2D180MNL1GS |
|                                | 27                                 | 10 $\times$ 13.5                      | 0.20         | 316  | 70                                       | ULV2D270MNL1GS |
| 250<br>(2E)                    | 8.2                                | 8 $\times$ 10                         | 0.25         | 182  | 35                                       | ULV2E8R2MNL1GS |
|                                | 15                                 | 10 $\times$ 10                        | 0.25         | 250  | 50                                       | ULV2E150MNL1GS |
|                                | 18                                 | 10 $\times$ 13.5                      | 0.25         | 280  | 55                                       | ULV2E180MNL1GS |
| 400<br>(2G)                    | 3.9                                | 8 $\times$ 10                         | 0.25         | 162.4  | 35                                       | ULV2G3R9MNL1GS |
|                                | 6.8                                | 10 $\times$ 10                        | 0.25         | 208.8  | 50                                       | ULV2G6R8MNL1GS |
|                                | 10                                 | 10 $\times$ 13.5                      | 0.25         | 260  | 55                                       | ULV2G100MNL1GS |
| 450<br>(2W)                    | 3.3                                | 8 $\times$ 10                         | 0.30         | 159.4  | 25                                       | ULV2W3R3MNL1GS |
|                                | 5.6                                | 10 $\times$ 10                        | 0.30         | 200.8  | 40                                       | ULV2W5R6MNL1GS |
|                                | 7.5                                | 10 $\times$ 13.5                      | 0.30         | 235  | 45                                       | ULV2W7R5MNL1GS |
| 500<br>(2H)                    | 1.8                                | 8 $\times$ 10                         | 0.30         | 236  | 25                                       | ULV2H1R8MNL1GS |
|                                | 3.3                                | 10 $\times$ 10                        | 0.30         | 266  | 40                                       | ULV2H3R3MNL1GS |
|                                | 4.7                                | 10 $\times$ 13.5                      | 0.30         | 294  | 45                                       | ULV2H4R7MNL1GS |

- For taping specifications, recommended land size/soldering by reflow and minimum order quantity, please refer to the Guidelines for Aluminum Electrolytic Capacitors.